```
#GOOGLE COLAB

from google.colab import files

uploaded = files.upload()

import pandas as pd

# Load the dataset
df = pd.read_csv('weather.csv')

# Display the first few rows of the dataframe
print(df.head())

# Check for missing values
print(df.isnull().sum())

# Histogram of precipitation
plt.figure(figsize=(8, 6))
sns.histplot(df['Evaporation'], bins=20, kde=True, color='green')
plt.title('Distribution of Evaporation')
plt.xlabel('Evaporation')
plt.ylabel('Frequency')
plt.grid(True)
plt.show()

# Scatter plot of temperature vs rainfall
plt.figure(figsize=(8, 6))
sns.scatterplot(x='MaxTemp', y='Rainfall', data=df, color='orange')
plt.title('Temperature vs Rainfall')
plt.xlabel('Temperature (C)')
plt.ylabel('Rainfall')
plt.grid(True)
plt.show()

# Summary statistics
print(df.describe())

# Correlation matrix
```

```
corr_matrix = df.corr()
plt.figure(figsize=(10, 6))
sns.heatmap(corr_matrix, annot=True, cmap='coolwarm', fmt=".2f",
linewidths=0.5)
plt.title('Correlation Matrix')
plt.show()
```

OUTPUT:

weather.csv(text/csv) - 29462 bytes, last modified: 04/02/2024 - 100% done
Saving weather.csv to weather (14).csv

	MinTemp	MaxTemp	Rainfall	Evaporation	Sunshine	WindGustDir	\
0	8.0	24.3	0.0	3.4	6.3	NW	
1	14.0	26.9	3.6	4.4	9.7	ENE	
2	13.7	23.4	3.6	5.8	3.3	NW	
3	13.3	15.5	39.8	7.2	9.1	NW	
4	7.6	16.1	2.8	5.6	10.6	SSE	

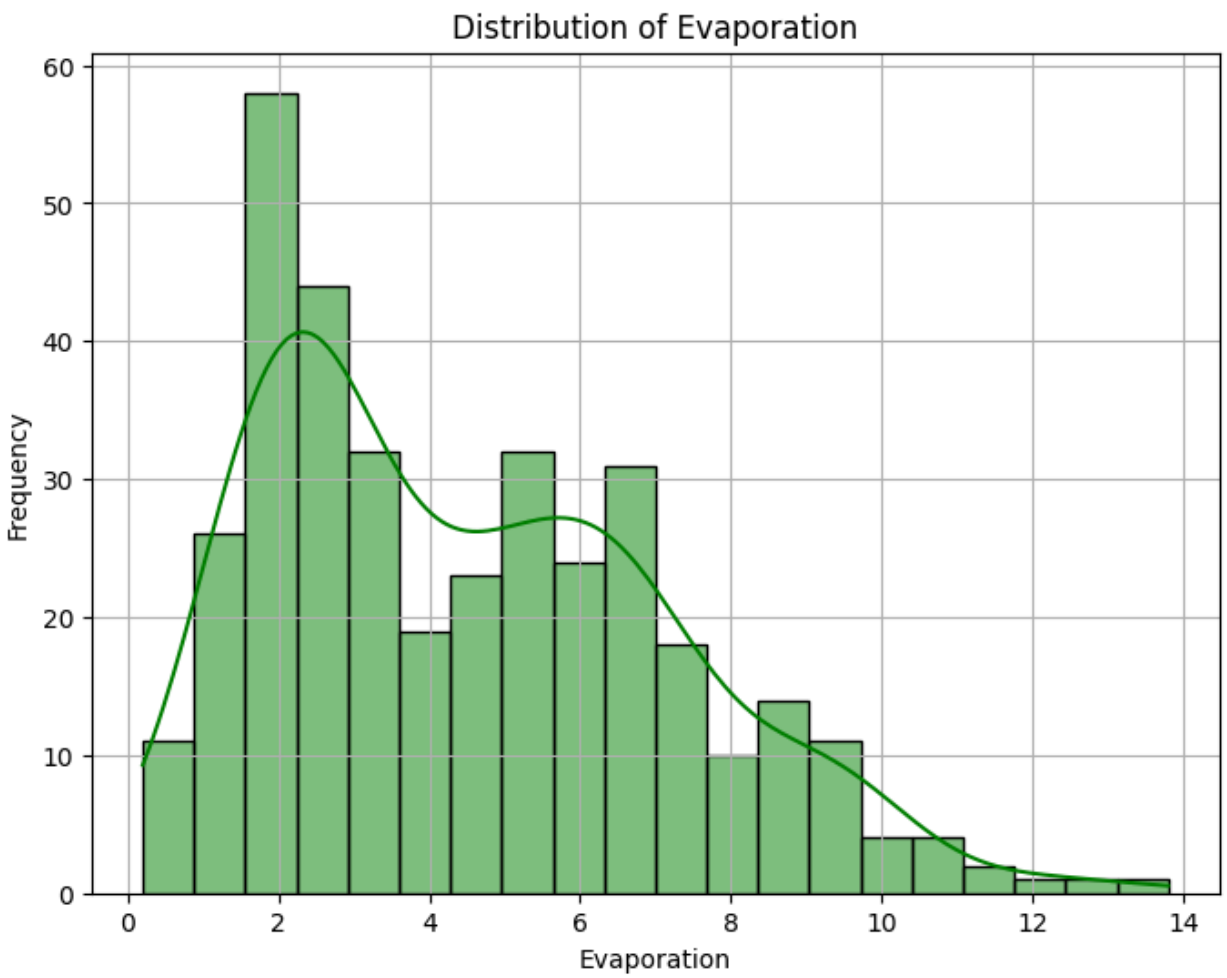
	WindGustSpeed	WindDir9am	WindDir3pm	WindSpeed9am	...	Humidity3pm	\
0	30.0	SW	NW	6.0	...	29	
1	39.0	E	W	4.0	...	36	
2	85.0	N	NNE	6.0	...	69	
3	54.0	WNW	W	30.0	...	56	
4	50.0	SSE	ESE	20.0	...	49	

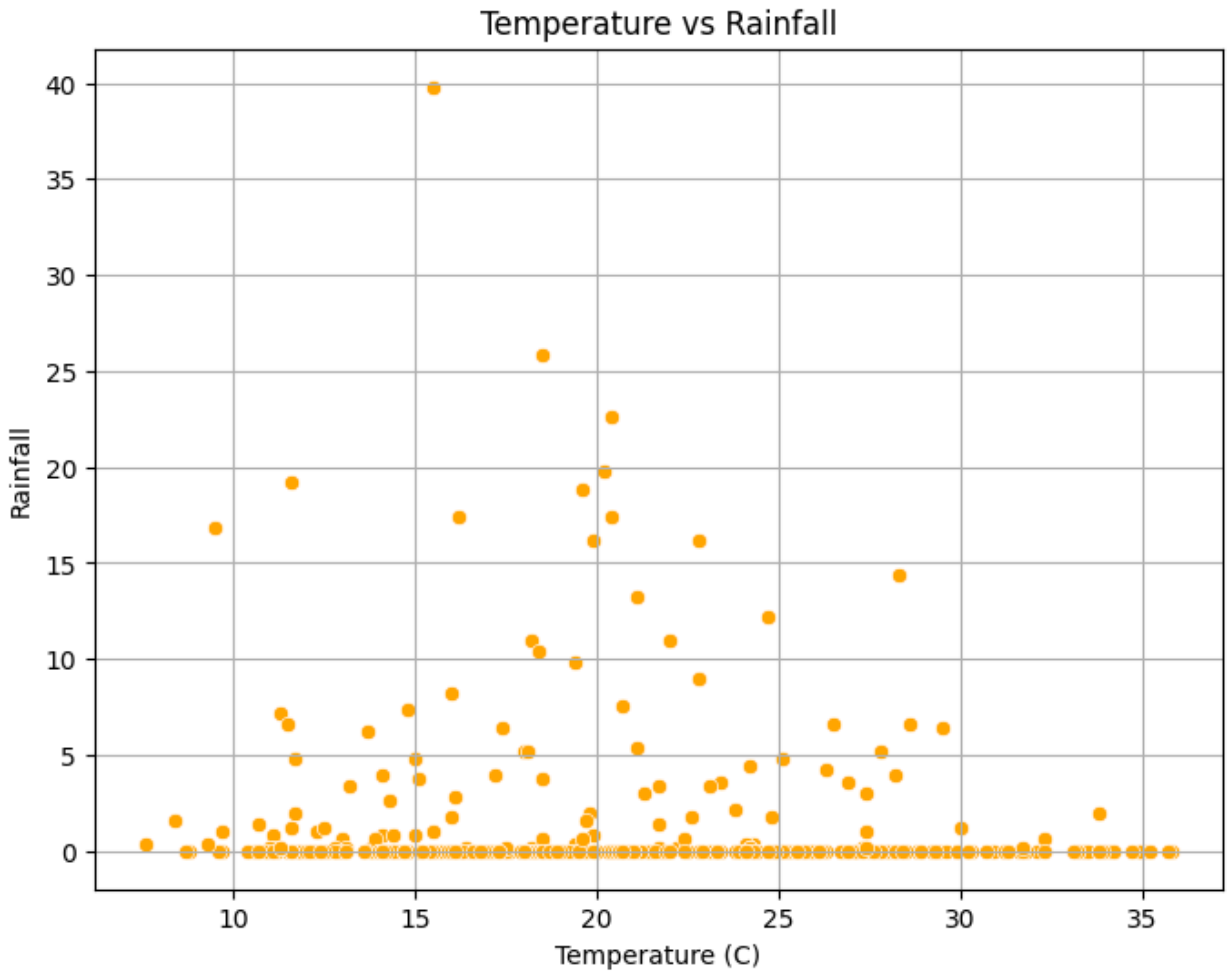
	Pressure9am	Pressure3pm	Cloud9am	Cloud3pm	Temp9am	Temp3pm	RainToday	\
0	1019.7	1015.0	7	7	14.4	23.6	No	
1	1012.4	1008.4	5	3	17.5	25.7	Yes	
2	1009.5	1007.2	8	7	15.4	20.2	Yes	
3	1005.5	1007.0	2	7	13.5	14.1	Yes	
4	1018.3	1018.5	7	7	11.1	15.4	Yes	

	RISK_MM	RainTomorrow
0	3.6	Yes
1	3.6	Yes
2	39.8	Yes
3	2.8	Yes
4	0.0	No

[5 rows x 22 columns]
MinTemp 0
MaxTemp 0
Rainfall 0
Evaporation 0

```
Sunshine          3
WindGustDir       3
WindGustSpeed     2
WindDir9am       31
WindDir3pm        1
WindSpeed9am      7
WindSpeed3pm      0
Humidity9am       0
Humidity3pm       0
Pressure9am       0
Pressure3pm       0
Cloud9am          0
Cloud3pm          0
Temp9am           0
Temp3pm           0
RainToday         0
RISK_MM           0
RainTomorrow      0
dtype: int64
```


Distribution of Evaporation
Frequency
Evaporation
0
10
20
30
40
50
60
0
2
4
6
8
10
12
14



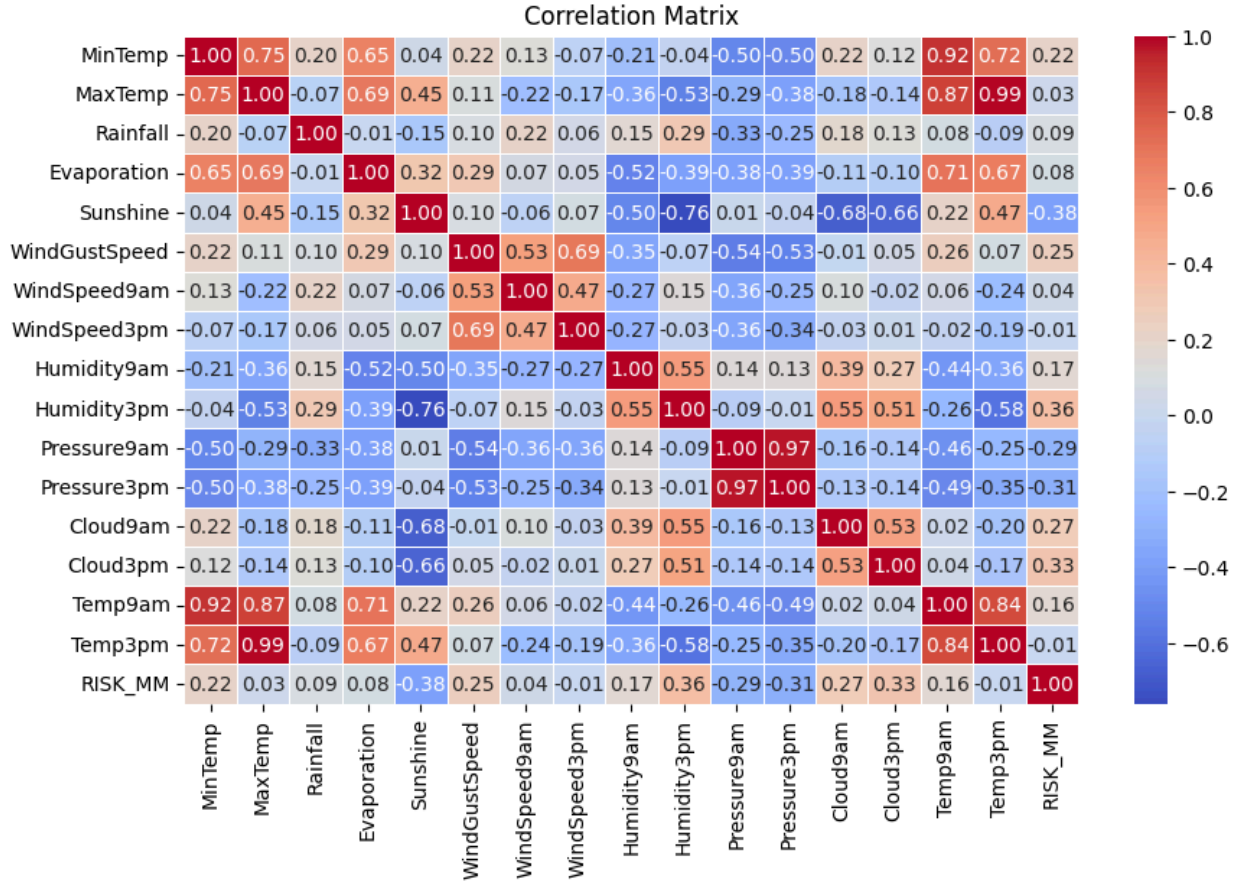
	MinTemp	MaxTemp	Rainfall	Evaporation	Sunshine
count	366.000000	366.000000	366.000000	366.000000	363.000000
mean	7.265574	20.550273	1.428415	4.521858	7.909366
std	6.025800	6.690516	4.225800	2.669383	3.481517
min	-5.300000	7.600000	0.000000	0.200000	0.000000
25%	2.300000	15.025000	0.000000	2.200000	5.950000
50%	7.450000	19.650000	0.000000	4.200000	8.600000
75%	12.500000	25.500000	0.200000	6.400000	10.500000
max	20.900000	35.800000	39.800000	13.800000	13.600000

	WindGustSpeed	WindSpeed9am	WindSpeed3pm	Humidity9am	Humidity3pm
count	364.000000	359.000000	366.000000	366.000000	366.000000
mean	39.840659	9.651811	17.986339	72.035519	44.519126
std	13.059807	7.951929	8.856997	13.137058	16.850947
min	13.000000	0.000000	0.000000	36.000000	13.000000
25%	31.000000	6.000000	11.000000	64.000000	32.250000
50%	39.000000	7.000000	17.000000	72.000000	43.000000
75%	46.000000	13.000000	24.000000	81.000000	55.000000

```
max       98.000000    41.000000    52.000000    99.000000    96.000000

       Pressure9am  Pressure3pm    Cloud9am    Cloud3pm     Temp9am  \
count   366.000000   366.000000  366.000000  366.000000  366.000000
mean   1019.709016  1016.810383    3.890710    4.024590   12.358470
std       6.686212     6.469422    2.956131    2.666268    5.630832
min     996.500000   996.800000    0.000000    0.000000    0.100000
25%    1015.350000  1012.800000    1.000000    1.000000    7.625000
50%    1020.150000  1017.400000    3.500000    4.000000   12.550000
75%    1024.475000  1021.475000    7.000000    7.000000   17.000000
max    1035.700000  1033.200000    8.000000    8.000000   24.700000

         Temp3pm     RISK_MM
count  366.000000  366.000000
mean    19.230874    1.428415
std      6.640346    4.225800
min      5.100000    0.000000
25%     14.150000    0.000000
50%     18.550000    0.000000
75%     24.000000    0.200000
max     34.500000   39.800000
<ipython-input-20-8b2d6621ec48>:38: FutureWarning: The default value of numeric_only in
DataFrame.corr is deprecated. In a future version, it will default to False. Select only valid columns or
specify the value of numeric_only to silence this warning.
  corr_matrix = df.corr()
```


Correlation Matrix
MinTemp 1.00 0.75 0.20 0.65 0.04 0.22 0.13 -0.07 -0.21 -0.04 -0.50 -0.50 0.22 0.12 0.92 0.72 0.22
MaxTemp 0.75 1.00 -0.07 0.69 0.45 0.11 -0.22 -0.17 -0.36 -0.53 -0.29 -0.38 -0.18 -0.14 0.87 0.99 0.03
Rainfall 0.20 -0.07 1.00 -0.01 -0.15 0.10 0.22 0.06 0.15 0.29 -0.33 -0.25 0.18 0.13 0.08 -0.09 0.09
Evaporation 0.65 0.69 -0.01 1.00 0.32 0.29 0.07 0.05 -0.52 -0.39 -0.38 -0.39 -0.11 -0.10 0.71 0.67 0.08
Sunshine 0.04 0.45 -0.15 0.32 1.00 0.10 -0.06 0.07 -0.50 -0.76 0.01 -0.04 -0.68 -0.66 0.22 0.47 -0.38
WindGustSpeed 0.22 0.11 0.10 0.29 0.10 1.00 0.53 0.69 -0.35 -0.07 -0.54 -0.53 -0.01 0.05 0.26 0.07 0.25
WindSpeed9am 0.13 -0.22 0.22 0.07 -0.06 0.53 1.00 0.47 -0.27 0.15 -0.36 -0.25 0.10 -0.02 0.06 -0.24 0.04
WindSpeed3pm -0.07 -0.17 0.06 0.05 0.07 0.69 0.47 1.00 -0.27 -0.03 -0.36 -0.34 -0.03 0.01 -0.02 -0.19 -0.01
Humidity9am -0.21 -0.36 0.15 -0.52 -0.50 -0.35 -0.27 -0.27 1.00 0.55 0.14 0.13 0.39 0.27 -0.44 -0.36 0.17
Humidity3pm -0.04 -0.53 0.29 -0.39 -0.76 -0.07 0.15 -0.03 0.55 1.00 -0.09 -0.01 0.55 0.51 -0.26 -0.58 0.36
Pressure9am -0.50 -0.29 -0.33 -0.38 0.01 -0.54 -0.36 -0.36 0.14 -0.09 1.00 0.97 -0.16 -0.14 -0.46 -0.25 -0.29
Pressure3pm -0.50 -0.38 -0.25 -0.39 -0.04 -0.53 -0.25 -0.34 0.13 -0.01 0.97 1.00 -0.13 -0.14 -0.49 -0.35 -0.31
Cloud9am 0.22 -0.18 0.18 -0.11 -0.68 -0.01 0.10 -0.03 0.39 0.55 -0.16 -0.13 1.00 0.53 0.02 -0.20 0.27
Cloud3pm 0.12 -0.14 0.13 -0.10 -0.66 0.05 -0.02 0.01 0.27 0.51 -0.14 -0.14 0.53 1.00 0.04 -0.17 0.33
Temp9am 0.92 0.87 0.08 0.71 0.22 0.26 0.06 -0.02 -0.44 -0.26 -0.46 -0.49 0.02 0.04 1.00 0.84 0.16
Temp3pm 0.72 0.99 -0.09 0.67 0.47 0.07 -0.24 -0.19 -0.36 -0.58 -0.25 -0.35 -0.20 -0.17 0.84 1.00 -0.01
RISK_MM 0.22 0.03 0.09 0.08 -0.38 0.25 0.04 -0.01 0.17 0.36 -0.29 -0.31 0.27 0.33 0.16 -0.01 1.00
MinTemp
MaxTemp
Rainfall
Evaporation
Sunshine
WindGustSpeed
WindSpeed9am
WindSpeed3pm
Humidity9am
Humidity3pm
Pressure9am
Pressure3pm
Cloud9am
Cloud3pm
Temp9am
Temp3pm
RISK_MM
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6